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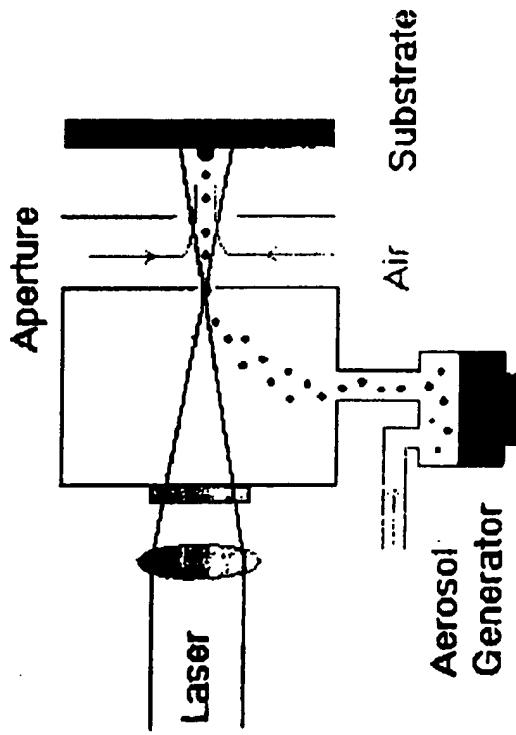
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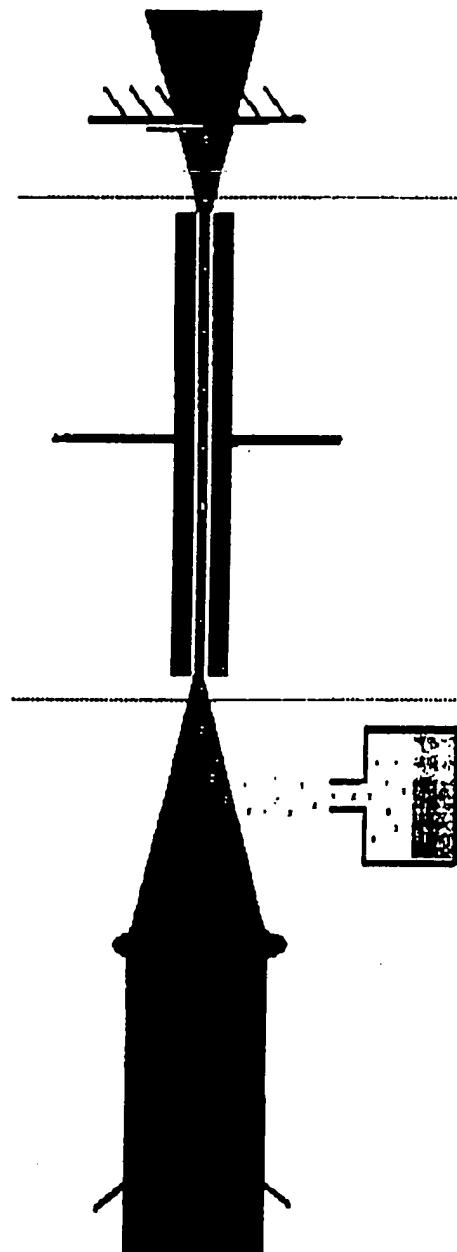
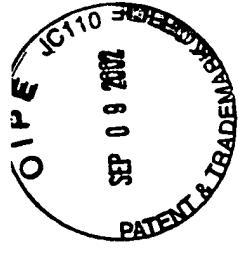


Features

- High Velocity (~10m/s)
- Variable Beam Diameter (10 μm)
- High Throughput (~ 10^9 s^{-1} in 100 μm beam)
- Reduced Clogging
- Long Working Distance (~ few cm)
- Simultaneous Laser Treatment

FIG. 1

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Aerosol Generation

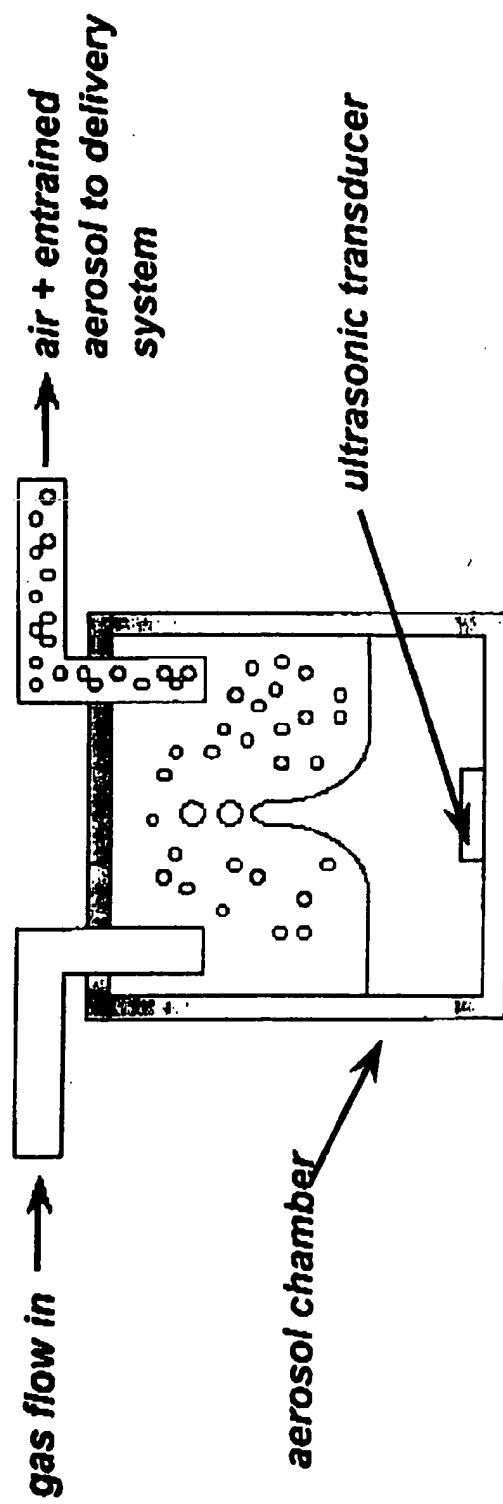
Particle Delivery

Laser Processing

Features

- Small droplets ($\sim 1 \mu\text{m}$)
- Dense aerosols ($\sim 10^{16} \text{ m}^{-3}$)
- Accuracy to $3 \mu\text{m}$
- Single particle to 10^9 particles/s
- Throughput to 0.25 mm^3/s
- Low power ($\sim 50 \text{ mW}$)
- High scan rate ($\sim 1 \text{ m/s}$)
- Dense, conductive materials ($\rho \sim 2x$ bulk)

FIG. 2



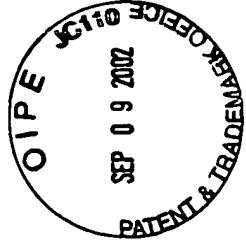
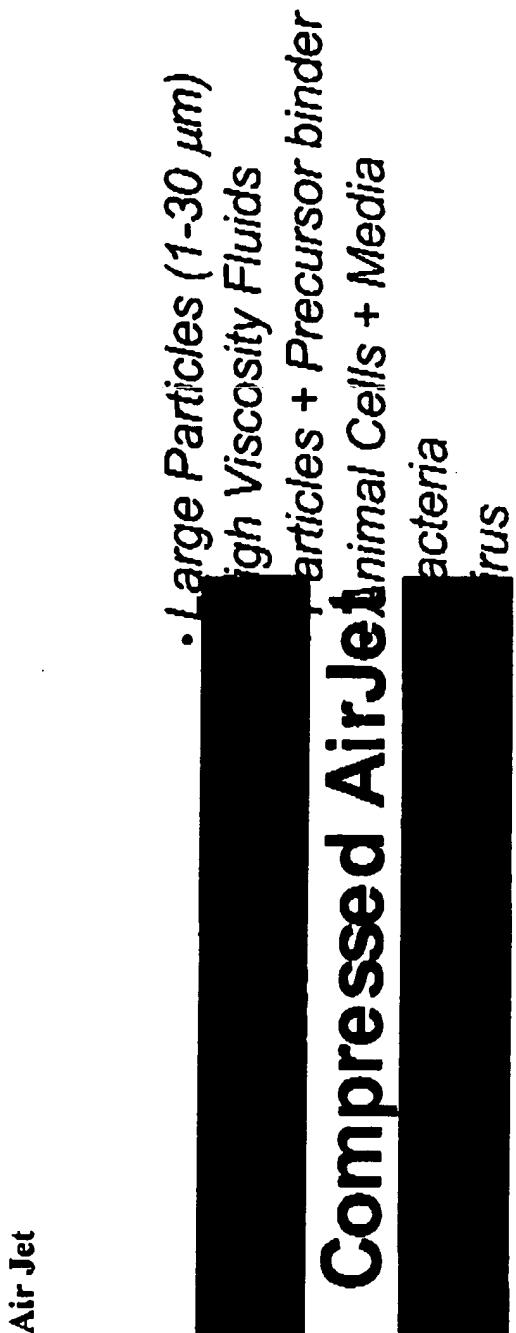
- Small droplets (~1 μm , 1 fL)
- Dense aerosols ($\sim 10^{16} \text{ m}^{-3}$)
- 100 μL minimum sample
- All solids, all precursors, or solid/precursor mixtures
- Precursor based alloys with atomic scale mixing
- Organic and biological entities in droplets (enzymes, proteins, virus, etc.)

FIG. 3



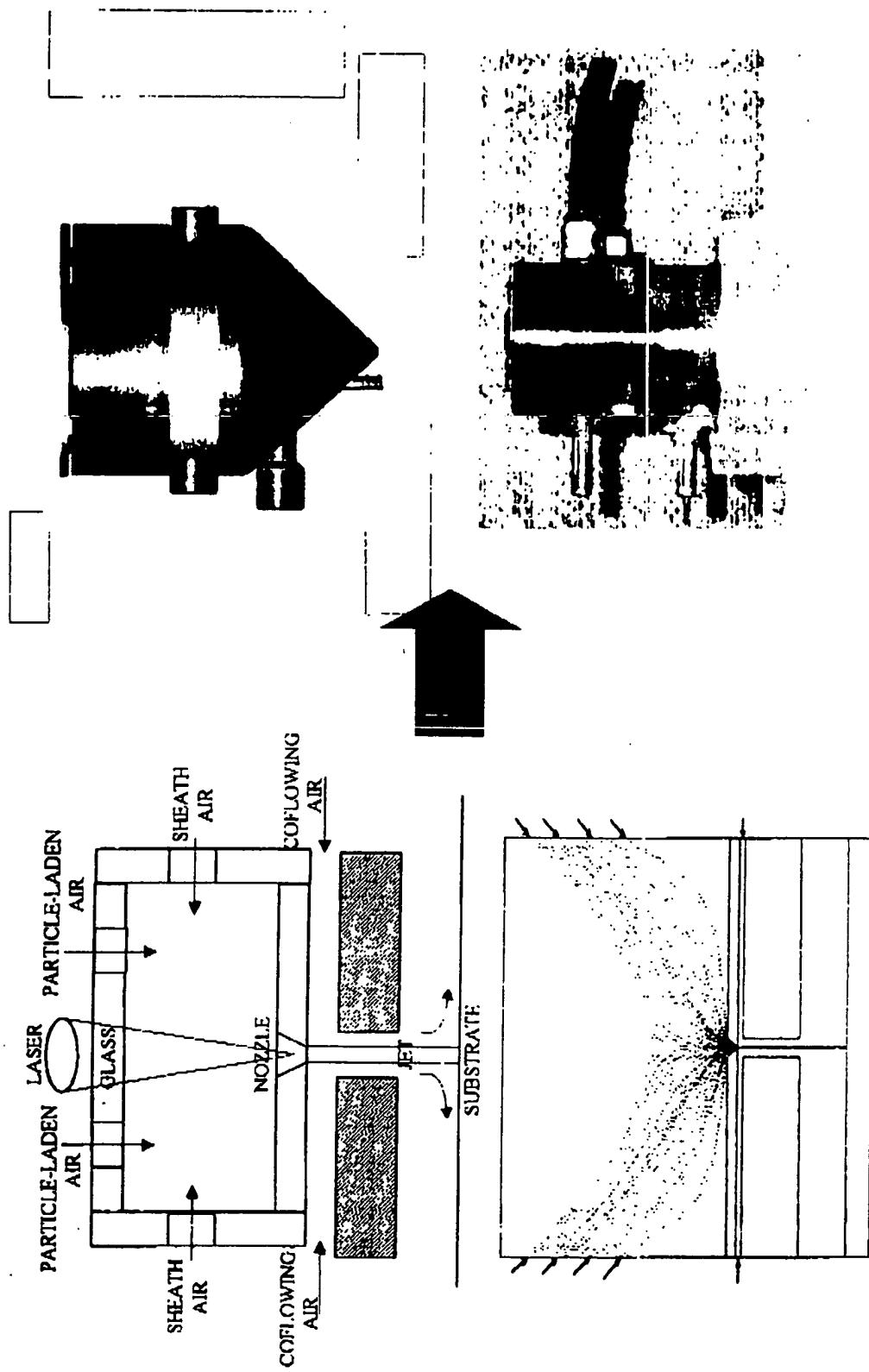
FIG. 4

Particulate in Suspension



200000 500000

FIG. 5





Cascade Impaction

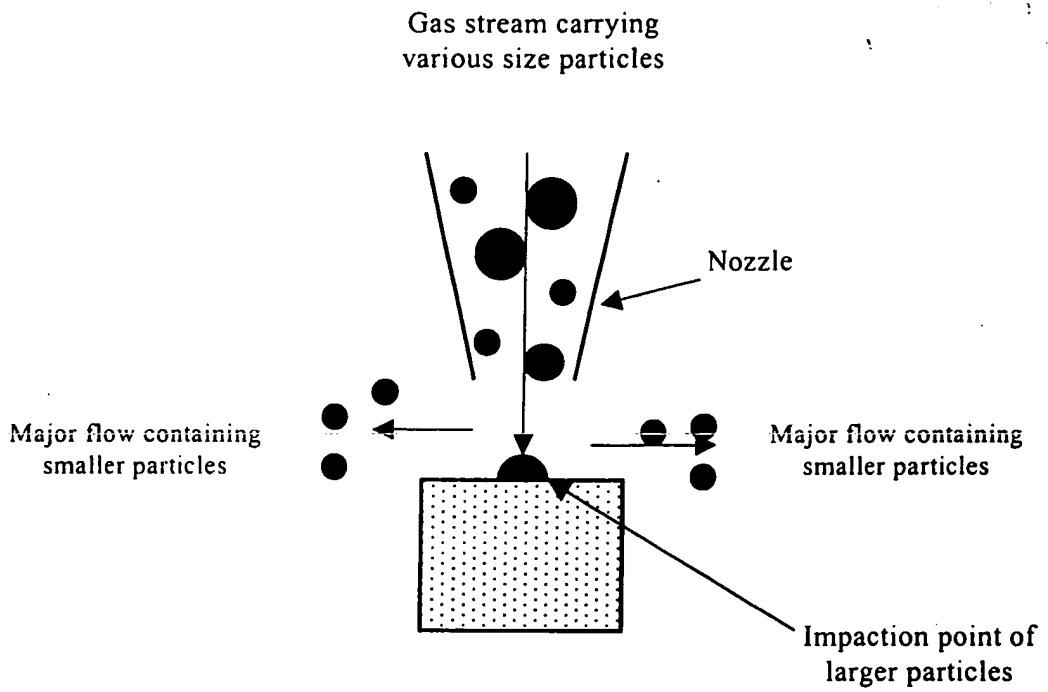


FIG. 6



Virtual Impactor

Gas stream carrying
various size particles

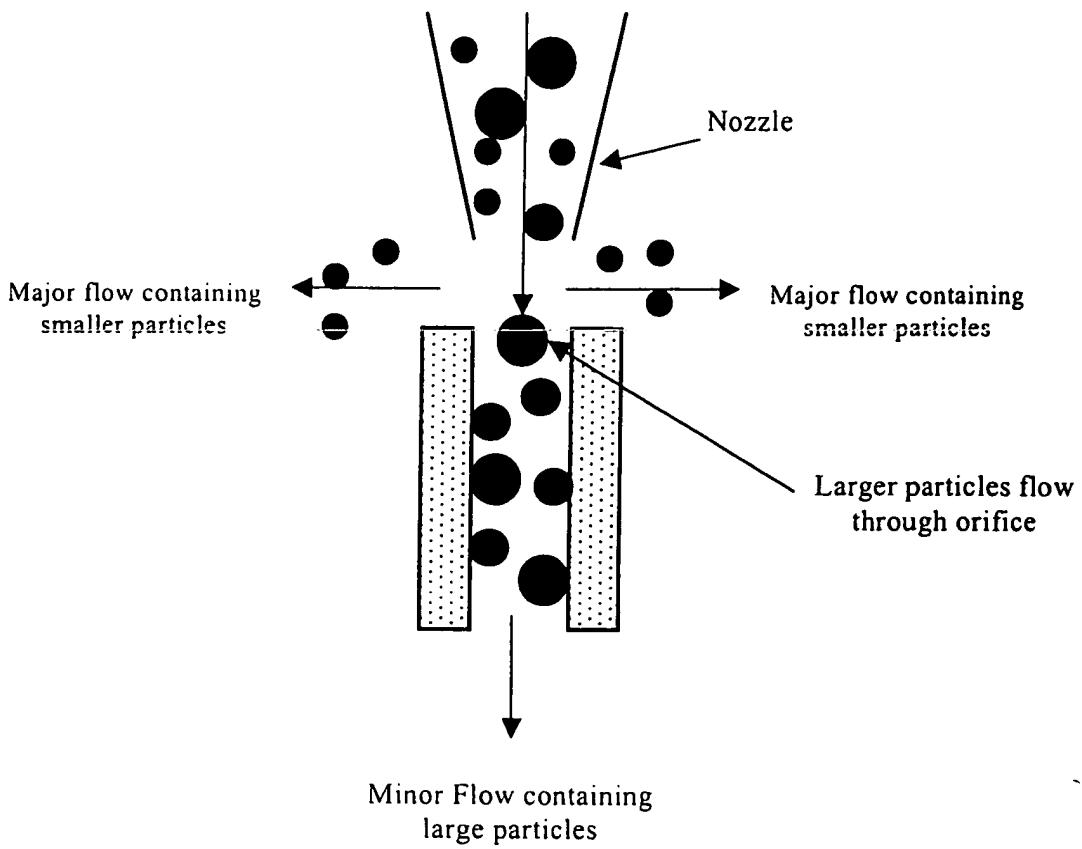
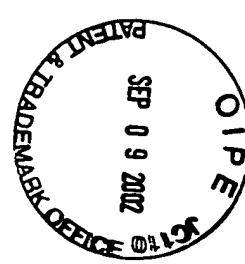


FIG. 7



Virtual Impactors in Series

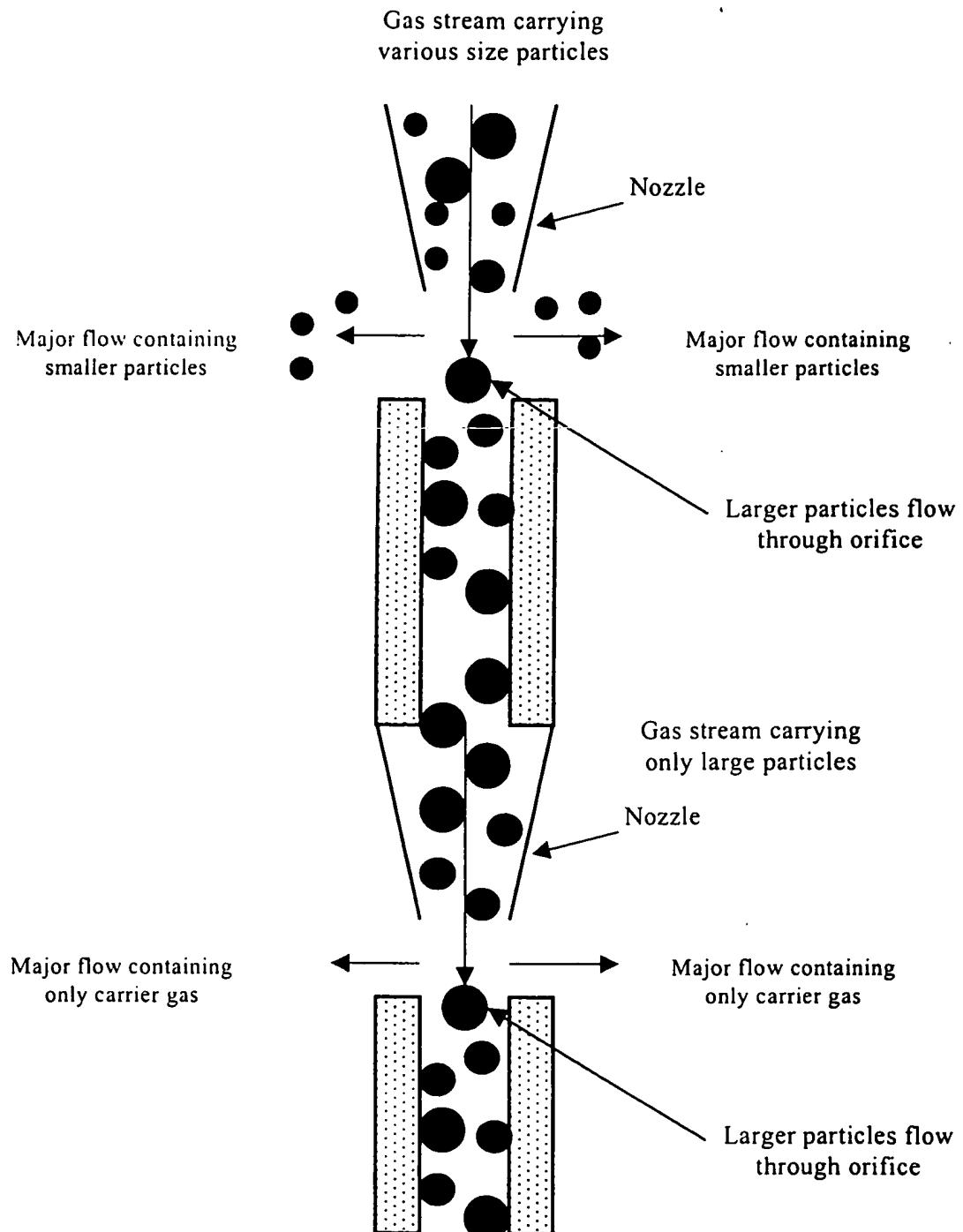
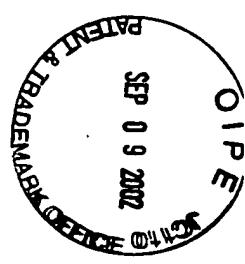


FIG. 8



Particle Sorting at Atomization Unit
& Virtual Impactors in Series

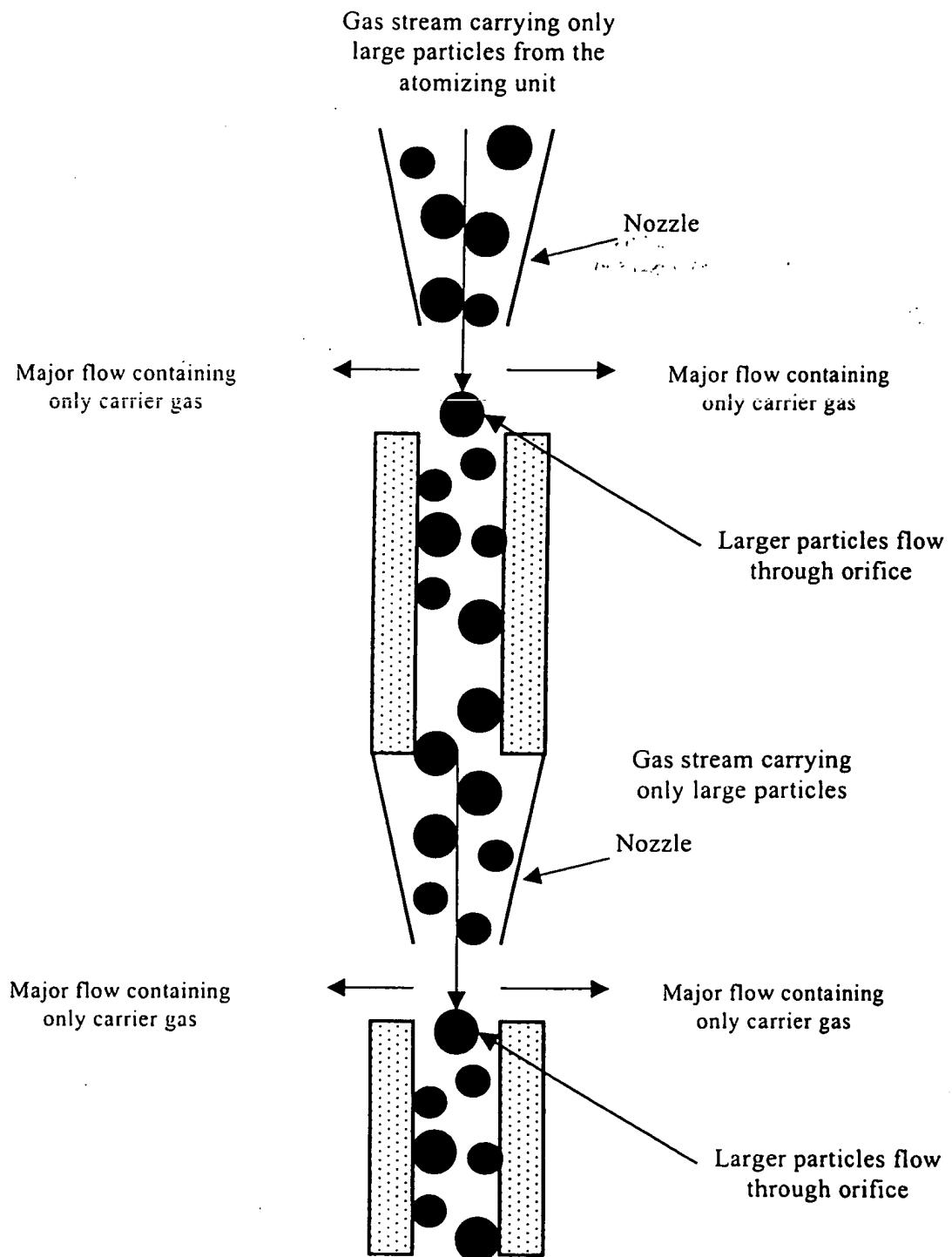


FIG. 9

Flow Guidance Delivery System

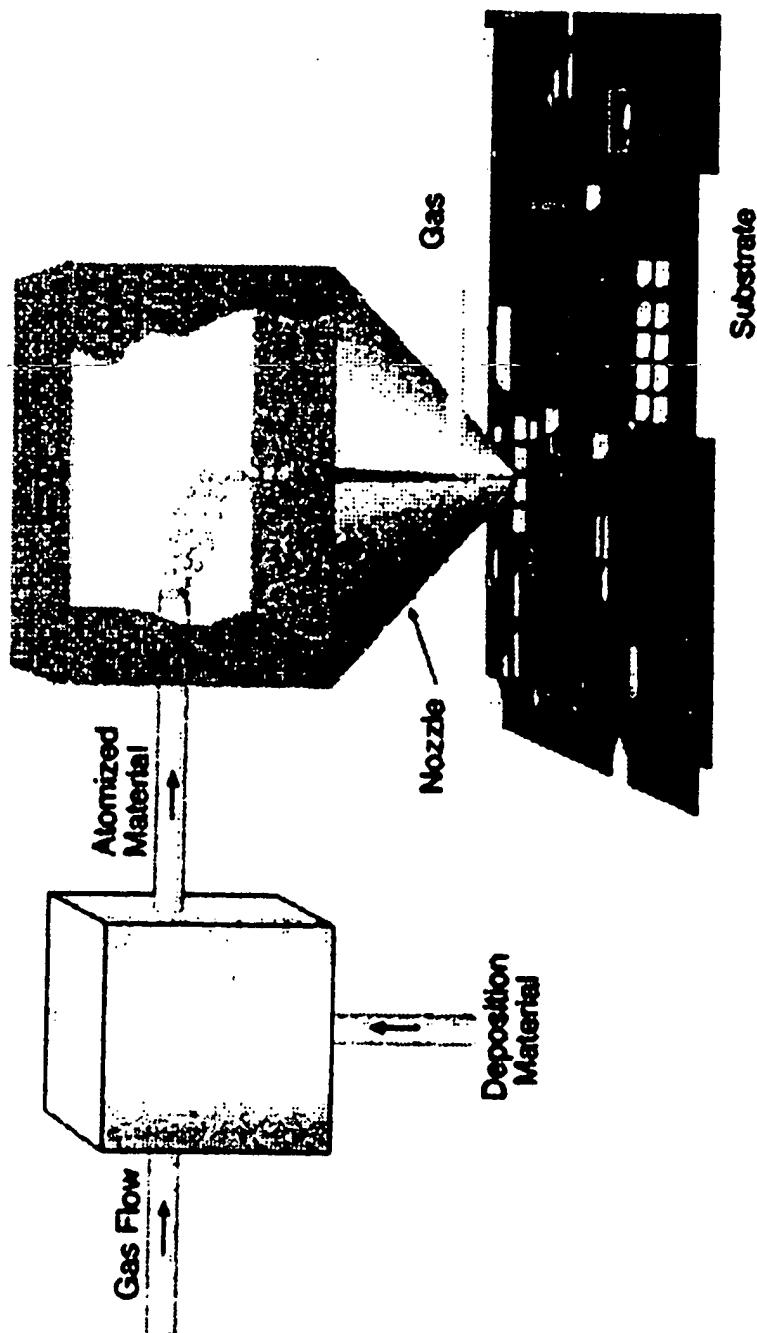
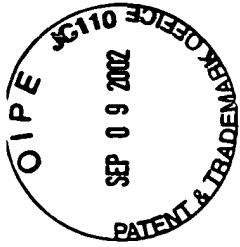


FIG. 10



Aerosol Stream

Sheath Gas

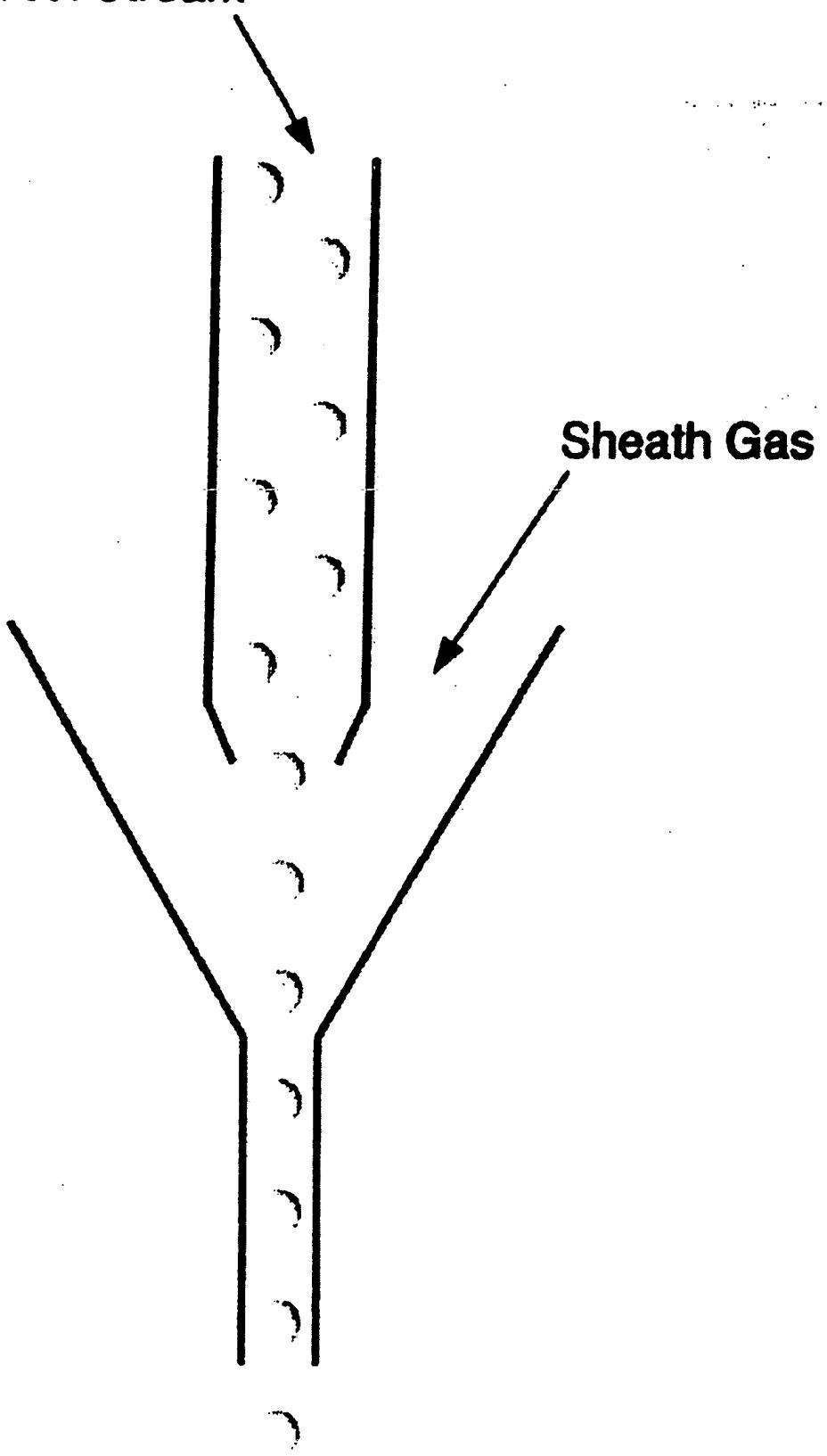


FIG. 11

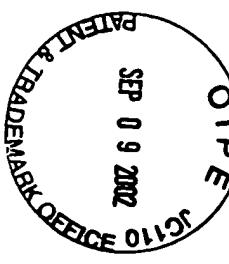


FIG. 12

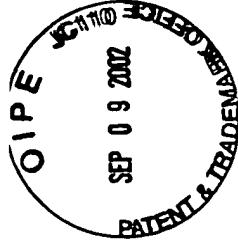
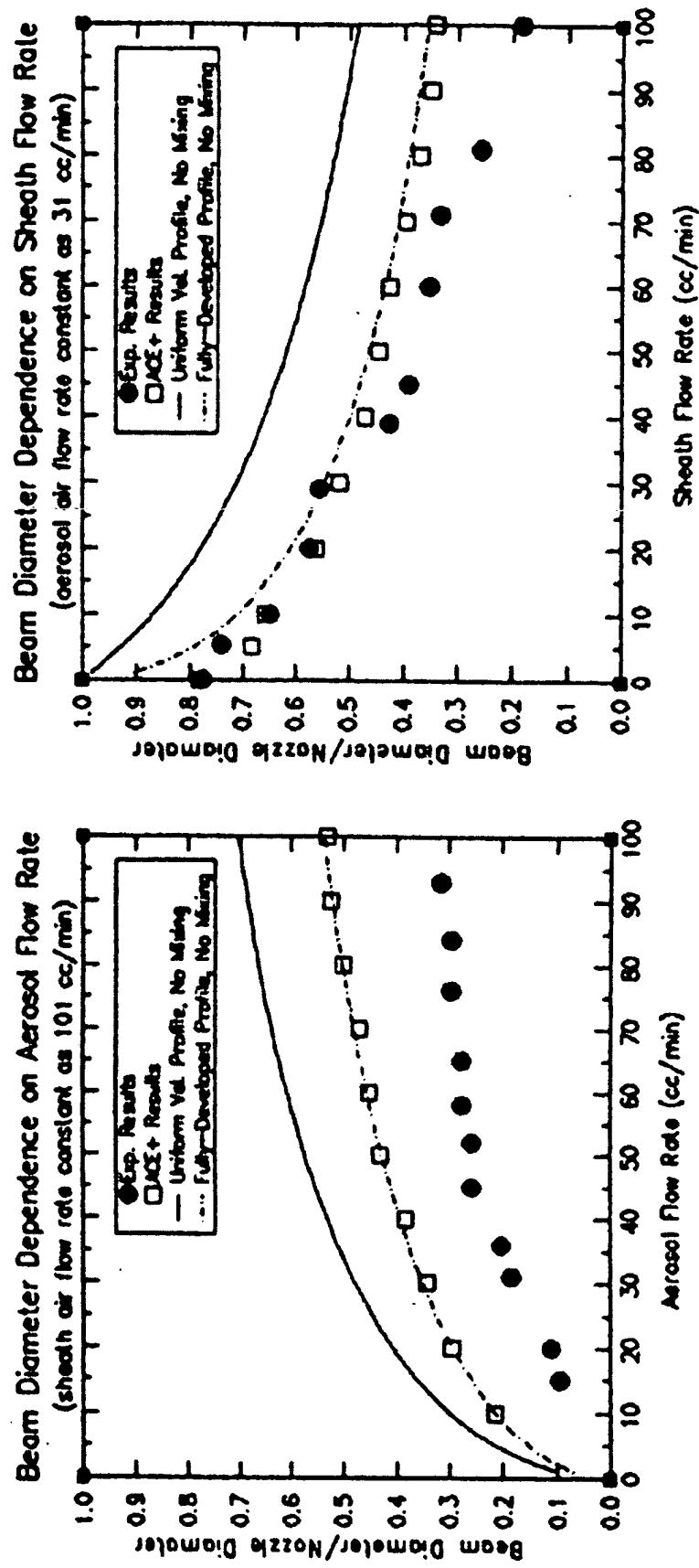
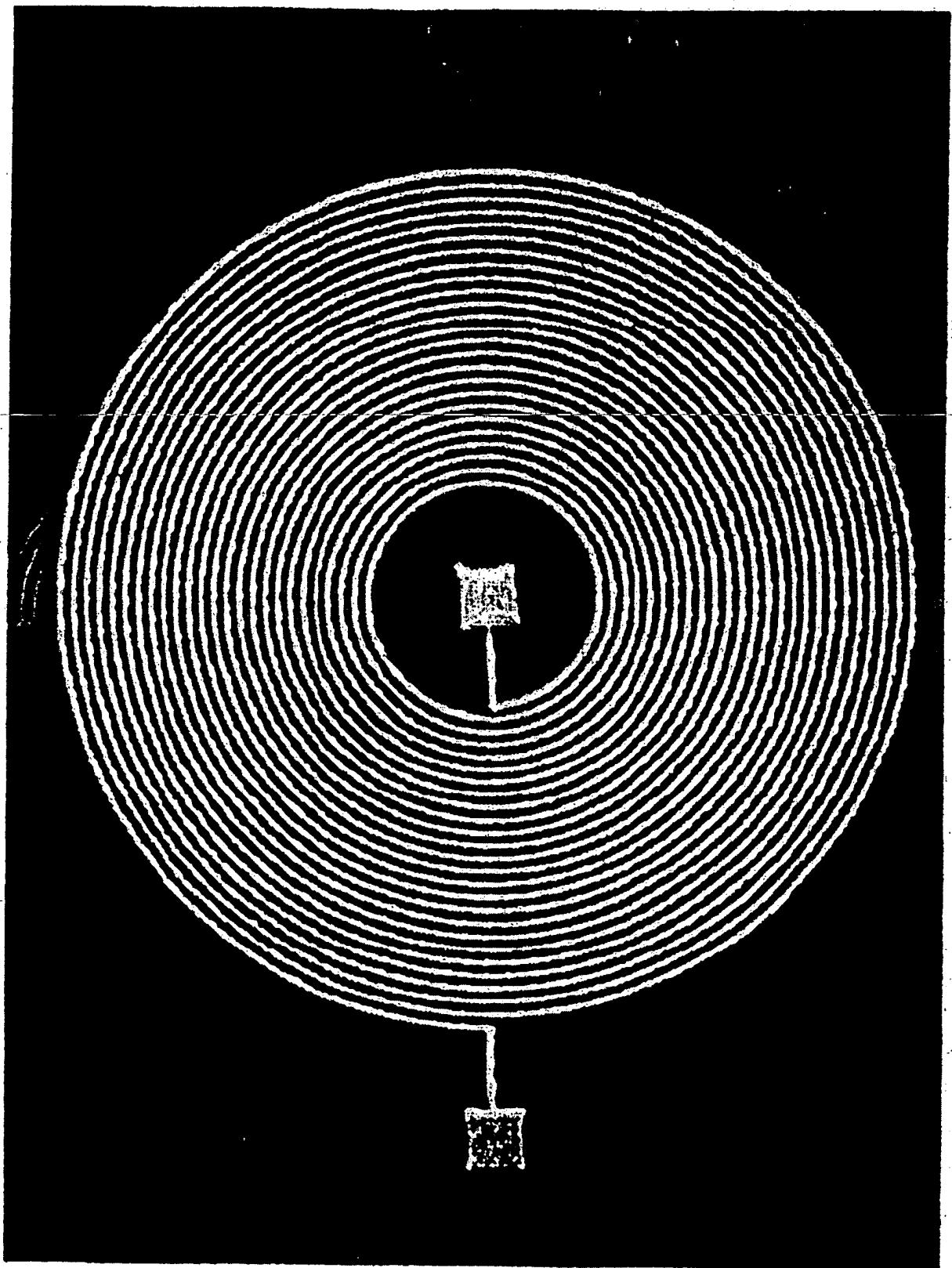


FIG. 13



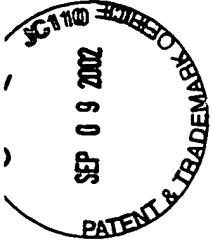
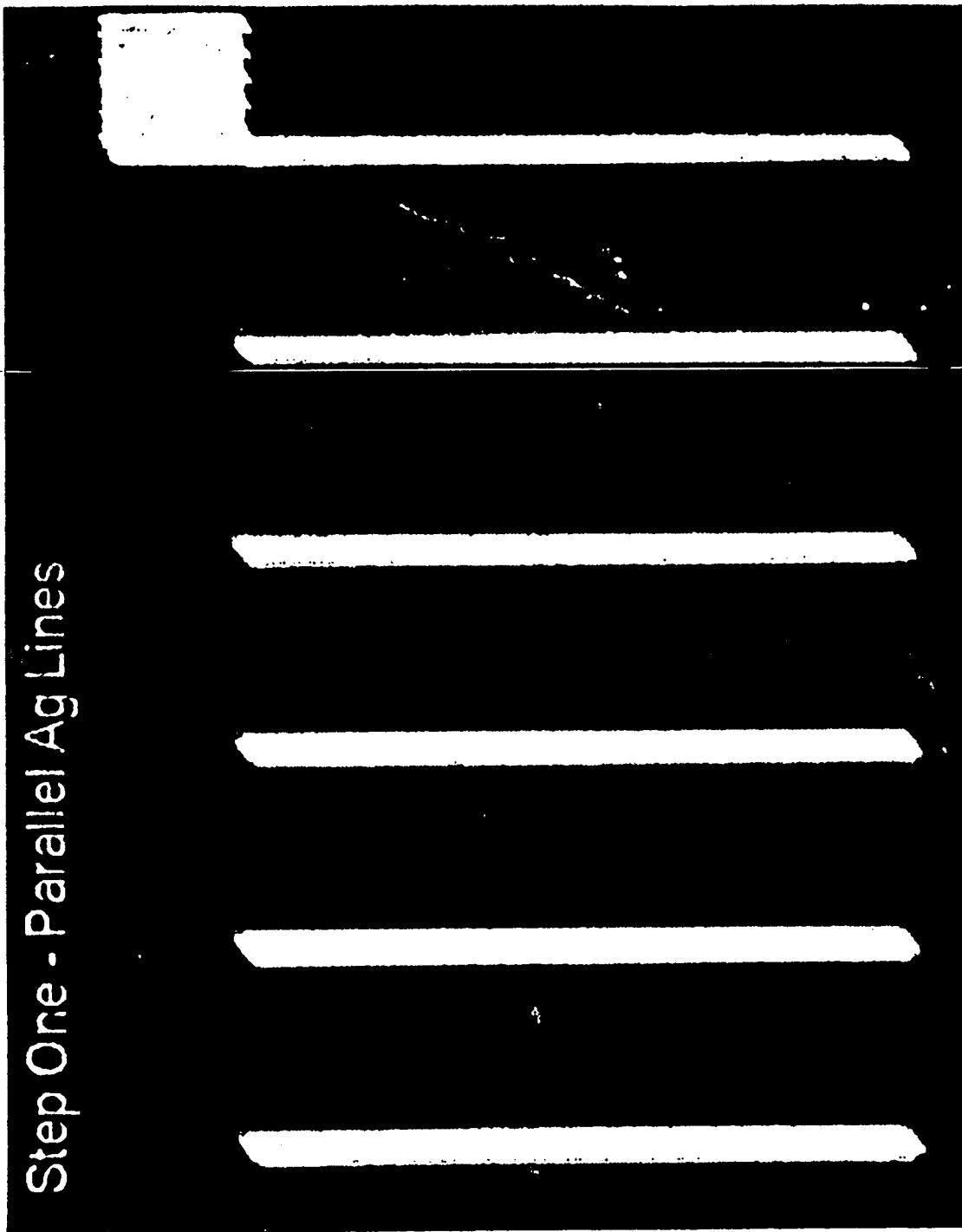
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FIG. 14

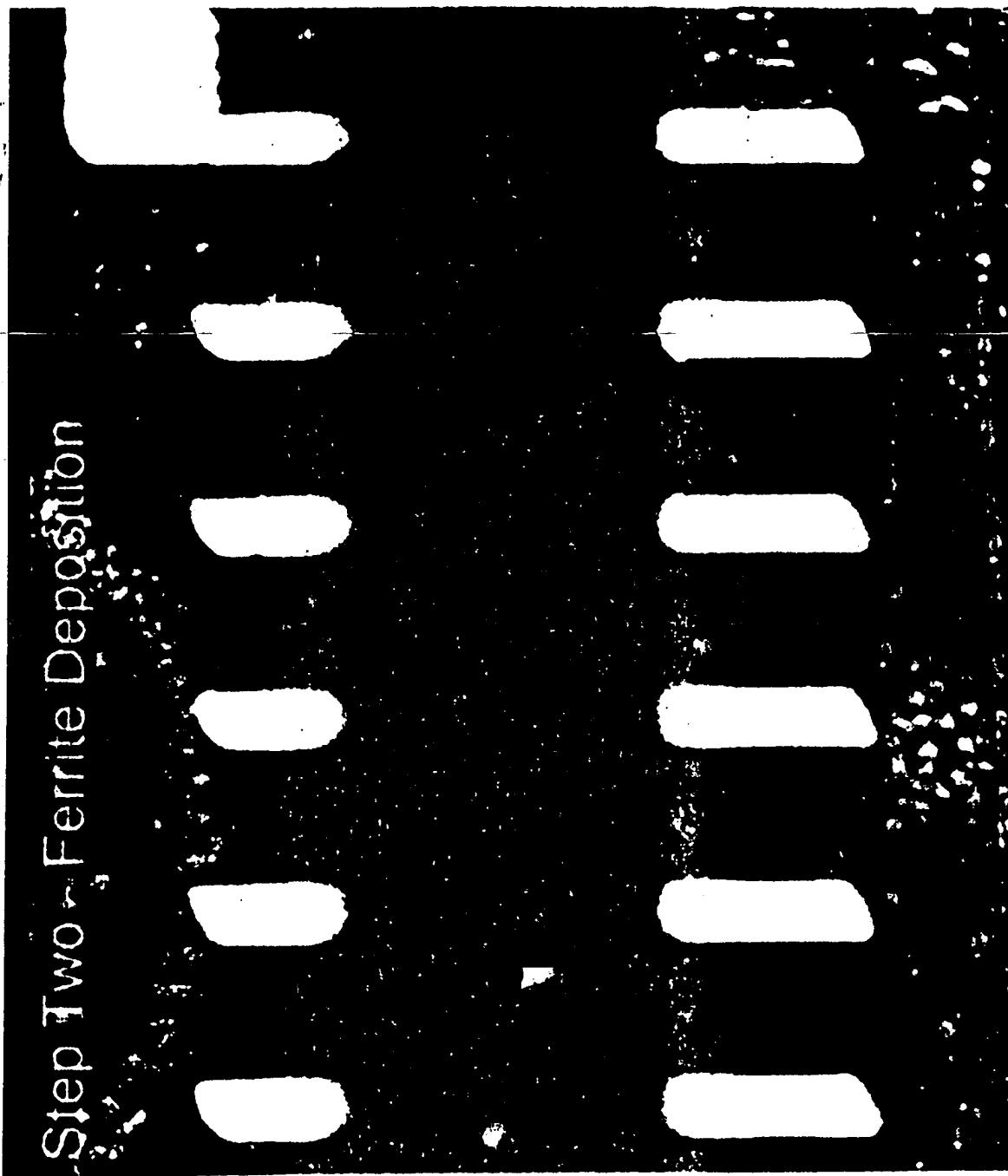
Step One - Parallel Ag Lines



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FIG. 15

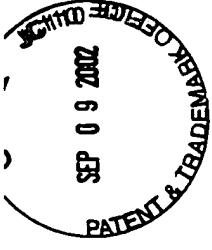
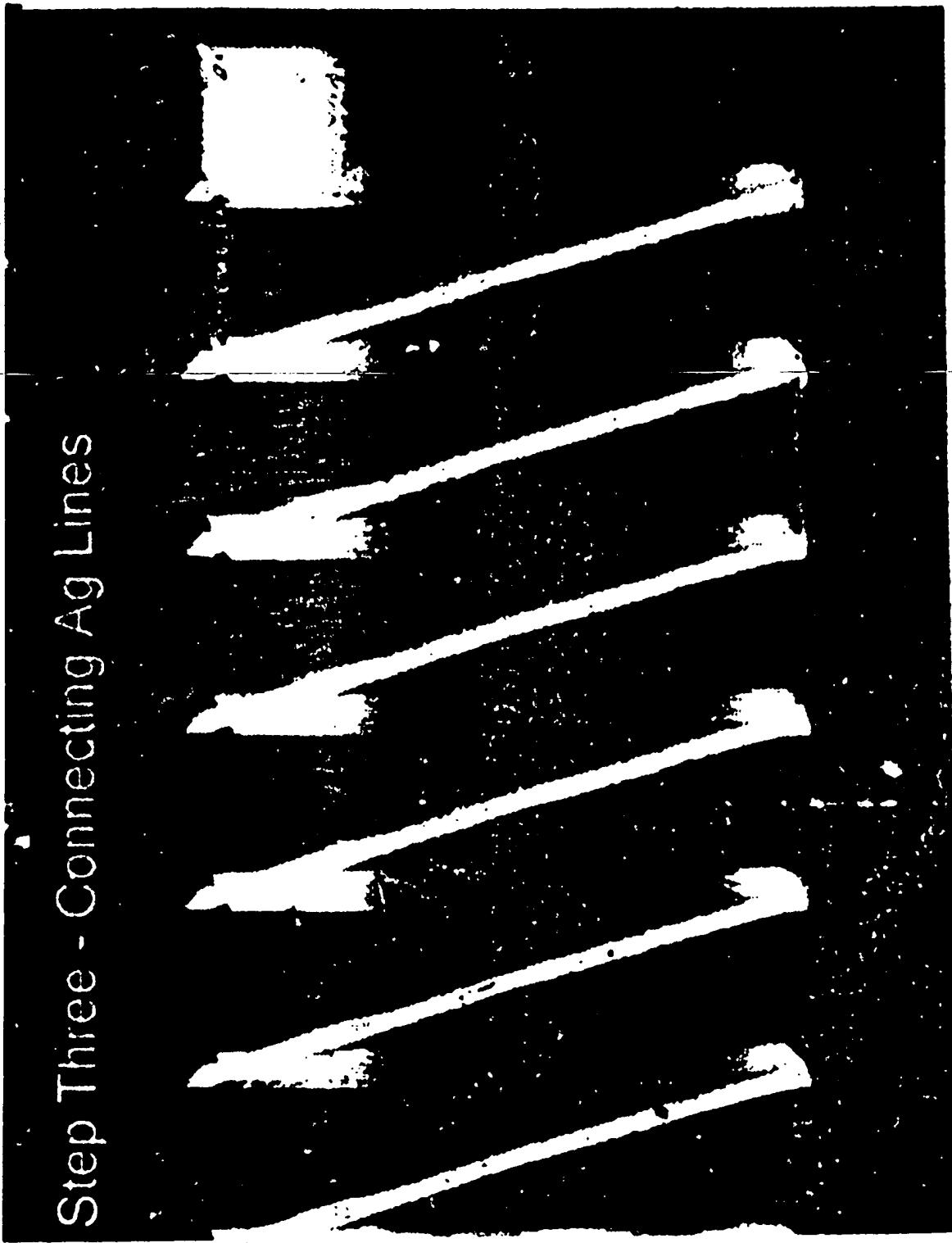
Step Two, Ferrite Deposition



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FIG. 16

Step Three - Connecting Ag Lines



四庫全書

FIG. 17

